

Making in India

A hardware approach to drive progress and innovation

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This report is created and published by:

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Month of publishing: **September 2017 Designed and printed in India**

swissnex India connects Switzerland and India in the fields of science, education, art and innovation. An initiative of the Swiss State Secretariat for Education, Research and Innovation (SERI) in association with the Swiss Federal Department of Foreign Affairs, swissnex India is part of the Consulate General of Switzerland in Bangalore (www.swissnexindia.org).

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1.

Executive summary

Makerspaces, FabLabs, Community spaces, DIY Labs, Hackerspaces – the manifestations of the *Making* movement go by several names. Although it is difficult to unify these categories under the single banner of *Making*, for clarity, this report uses the words *Making* and *Makers* to describe the core movement as well as its extensions and the people taking part in them.

This report covers the *Making* movement in India with its major fields of application and actors (spaces). *Making* was initiated in different parts of the world but the Massachusetts Institute of Technology (MIT) recognized the first few Makerspaces that were equipped with machinery such as 3D-printers, wood-work tools, laser cutters, electronics, workbench, etc., encouraging a community with open source knowledge philosophy. *Making* has since naturally diverged into sub-movements during its expansion. From a broad definition, *Making* describes a movement encouraging the integration of digital technologies and manual efforts in realization of hardware projects. *Making*, generally conducted in Makerspaces, is performed by a community of *Makers* and in such places peer-learning and collaborations are highly valued. Proficiencies featured in spaces can be as old as woodworking and architecture to as modern as 3D printing, robotics and internet of things. *Making* attracts people from different backgrounds such as entrepreneurs, students, senior citizens, children, etc. Thus, from being a hobby, *Making* now serves many causes: a vector for teaching and learning skills, a driver of citizens' empowerment, a startup kickstarter, and a platform to meet like-minded or different people. Makerspaces evolved as the right platform to physically anchor the Do It Yourself (DIY) momentum providing materials, tools and machinery for the execution of diverse projects, especially in the United States of America. The thriving *Making* movement was soon exported from the USA to four other continents. Switzerland and India, two technology oriented nations, have welcomed it enthusiastically in the last 5 years.

Why is India an emblematic country for the *Making* movement? India's rich demographic dividend, various layers within the economic setup, and the complexity becomes an ideal ground for *Making* to thrive. While on one hand India faces several challenges in the environmental, agricultural, societal, and educational setup, the fact remains that India is abundant with opportunities and is the fastest growing economy in the world with its vibrant startup ecosystem, large market size and intellectual capital. On the other hand, *Making* finds a place at almost every layer of this evolution, developing solutions to tackle major issues while also participating in the economic development.

This report is meant for Swiss readers and provides insights on how the *Making* movement developed in India. Firstly, the research defines and then categorizes the *Maker* movement in three categories: education, social and entrepreneurship which can be commonly understood between Switzerland and India. Secondly, there is a discussion on the concepts inherent to *Making*, namely, community, partnerships and collaborations. The report finally concludes with key recommendations that would foster engagements among the Swiss & Indian *Makers*.

2.

Making movement in India

2.1 Roots of *Making*

Making has blossomed in India in the last 5 years. Approximately 20 large Makerspaces emerged in different parts of the country during such a short time-span. Before delving into Indian *Making*, it is important to appreciate the origins of this movement. Renovating one's house, repairing machines with available means and tools is not new to humankind. For instance it is common for a western household to keep a handy toolbox at home. In India, 'fixing broken items using simple and ingenious solutions' is a process so inherent to the nation's mindset that it has even been given a name: **Jugaad**¹.

How did this essential, if not basic, act of 'doing' turn into a worldwide movement known under the label of *Making*?

The initiation of the *Maker* movement can be mapped to the socio-economic changes that occurred at the end of the 20th century. Firstly, while technological breakthroughs grew exponentially, the associated costs decreased dramatically, for example, computers and electronics became more affordable. Small groups of enthusiasts in the USA and Germany appropriated this affordable technology and tinkered with it in the first "Makerspaces". Secondly, along with innovative breakthroughs, the emergence of internet was determinant for the development of the *Making* movement. Not only did it inter-connect the communities of hacking enthusiasts but also became a platform for sharing open source knowledge. Through forums and websites, people were able to efficiently share and gather information, breaking down the constraints of physical distance. Finally, growing awareness and sensitivity towards the drawbacks of mass production and consumerism encouraged DIY (Do It Yourself) mindset and similar initiatives aiming at re-connecting people with manual skills and self production.

2.2 Expansion and evolution of *Making*

Tracking the first Makerspaces is difficult since standalone spaces were created even before the word '*Maker*' was designated to describe them. The creation of the *Making* movement as we know it, started in the USA at Massachusetts Institute of Technology (MIT). The campus was already a nest of Makerspaces, attracting a lot of engineers and technology enthusiasts. The official release of the first *Make* magazine in 2005 followed by the organization of the first *Maker Faire* in 2006, coined the term '*Maker*'. Fittingly, as early as 2009, USA President Obama acknowledged the benefits of *Making* during his "Educate to Innovate" campaign, recognizing the importance of the *Maker* movement in the modern society and the opportunities it represented for the world.

Following the success in the USA, the concept of *Making* was also implemented in other countries. In India, for instance the incorporation of *Making* was largely driven by Indian expats returning from the USA, in the early 2010s. As with other countries, in India, *Making* has been incorporated in resonance with its socio-economical background and cultural heritage. Heterogenous groups of visionaries reviewed *Making*, its disruptive approach to technology and synergistic sense of community. Many stakeholders such as companies or institutions have been investing in *Making*. Recently, the country has also seen Government initiatives arise such as **Atal Tinkering Lab**², designed to introduce children to *Making* in schools.

¹ <https://en.wikipedia.org/wiki/Jugaad>

² <http://niti.gov.in/content/atal-tinkering-laboratories>

Adapting it to different purposes, *Making* pioneers developed sub-branches of the *Maker* movement. In India, with its diversity, *Making* has been explored through various lenses ranging from social development projects to corporate innovation, involving *Makers* from different demographics, professions, as well as cultural and social backgrounds.

2.3 *Making* focus areas in India

Each Makerspace is inherently unique through its mission, skill applications, community and its strategy. Although it is challenging to comprehend it in only three categories for 1.3 billion people, broadly, education, social impact & entrepreneurship can be used to categorize the Indian *Making* movement. It should be noted that though two spaces may appear to work on a similar problem, they use different approaches to solve it. Many makerspaces are also exploring interfaces between the three above mentioned categories.

The subsections below explore these three categories of Indian *Making*:

2.3.1 Education

Makerspaces often gather a heterogeneous crowd, fostering collaboration and peer synergies. *Making* not only values the end product but also the process of implementation. A focus on this aspect of *Making* powers an alternate model of education which emphasizes on both the content as well as the way knowledge is transmitted.

Finding its roots in digital and manual competences, the *Making* culture draws from a large spectrum of professions. On one hand, it incorporates the latest technology advances in engineering and design. On the other hand, it gets back in touch with older techniques such as wood and metal work or sewing which are sometimes looked down upon as compared to more 'intellectual' occupations.

In the opinion of some *Makers*, current education systems value theory a lot, neglecting practical knowledge. They argue that this leads to a rough transition from classrooms to professional fields, especially in research, engineering and design. Hence, some *Makers* have taken upon themselves to make the missing technical skills accessible to professionals and students. Such an education system is aimed at complementing the existing educational structure rather than replacing it. Concretely, THE-Workshop (5.5), a space launched in Bangalore by a group of architects, provides a wide variety of eclectic interactive classes to equip its participants with hands-on knowledge in design, architecture and engineering. Other *Makers* have also implemented the concept for a much younger crowd. At the Kolkata MakersLoft (5.2), a lot of classes, workshops and programs are aimed at children who are the innovators of tomorrow and to whom making comes naturally. Furthermore, from primary school to college, India is witnessing several initiatives of opening Makerspaces within the institutions like CEPT-FabLab Ahmedabad (5.8).

2.3.2 Social impact

Making affects society on a broader scale, beyond formal education. The *Maker* movement claims that innovation is in everyone's hands and aims at shaping an empowered society that believes in its own capacity to invent and build. By launching open programs and workshops, as well as campaigns of public outreach, many Makerspaces attract curious individuals from all ages to try out 3D printing, laser cutting or programming to stir up their latent creativity. A key reason for the advent of the 'social impact' focus in *Maker* movement is the lack of 'fix and re-use' culture in modern times. With a growth in consumerism mindset and automation, people have become averse to manual work, replacing broken items with new ones rather than fixing them. This started changing with the emergence of the DIY mindset, to which Makerspaces contribute by openly sharing their knowledge online and offering facilities for people to conduct their projects.

The *Making* approach to 'make more with less' through low-cost innovation and the recycling of used material proves itself useful in resource limited environments. Also most Makerspaces keep their doors open for all. However, granting access is not sufficient to bring about the much needed fundamental change.

Especially in marginalized groups, such as poorer layers of society or rural areas, end users may not be able to approach services provided by them for economical, geographical and cultural reasons. Social entrepreneurs have therefore started hackathons and programs for the development of affordable technologies to tackle local problems faced by these populations. Others have placed their focus on the communities themselves and offered workshops and programs to give people living in scarcity, skills to develop their own solutions. The social-oriented organization Project-DEFY (5.3) went one step further. It founded makerspaces directly in rural India and Uganda. These spaces became fully autonomous within one month of their launch and are now run by and for local inhabitants, making these structures self-renewing and sustainable.

2.3.3 Disruptive innovation

A majority of Makerspaces in India provide entrepreneurs with their physical infrastructure needs and large networks. This has been long due since a majority of technological breakthroughs have traditionally come through corporate R&D and academia. However, the major part of the population still remains disconnected from the process of innovation. Makerspaces offer a rich and diverse pool of people and skills, community driven approach, and easy access to machinery and tools. This package has resulted in the creation of new class of startup incubators and coworking spaces. They put a focus on hardware and digitalization, facilitating skill exchange between members, saving time and money for small companies that have limited human and competency capital.

Access to coaching and affordable prototyping is highly important for startups. IKP-EDEN (5.9) is a large incubator based in Bangalore. In addition to having their own private space, incubated startups enjoy the well equipped makerspace, a supporting staff as well as a co-working room. Apart from being advantageous for already implemented startups, entrepreneurship focused spaces enable some good ideas to grow into products. A lot of hobbyists are encouraged and supported by such spaces to accelerate their inventions. Thus *Making* is not only beneficial for the Maker but can also create profit, job opportunities and have a broader impact on society.

3.

Building the network

3.1 Community in *Making*

It is established that Makerspaces bridged the gap between people and technologies. In addition to the cutting edge machines and advanced courses, *Making* fosters a culture of 'community'. The strength of a Makerspace lies in the interactions between its *Makers*. A more interactive and diversified community delivers well rounded projects.

Experimentation and learning are crucial in the multidisciplinary approach of *Making*, comprising science, technology, robotics, architecture, and art. Community driven peer-learning naturally arises as a cost and time efficient solution to share knowledge in forms of 'give and take' such as mutual training on complementary skills or technologies. In Bangalore Makerspace and Open Source Creativity (5.10), *Makers* attending workshops or using the space are encouraged in giving back to the community by teaching their skills through workshops rather than paying fees.

The diversity of *Makers* community is not restricted to skills as the spaces also act as platforms where people of different ages, education and opinions mingle seamlessly. This n-sized matrix of unknowns gives space for endless combinations of out-of-the-box thinking. Maker's Asylum (5.4), one of the pioneer Makerspaces in India, comprises one of the most diverse community with people such as students, freelancers, hobbyists, entrepreneurs, retired professionals from various ages and backgrounds. This newly minted ecosystem echoes with a modern era where science and work culture break out of their verticals and catalyzes its progress via a cross-disciplinary approach.

3.2 Types of communities

Building a community of *Makers* is a local challenge and is determined from the parameters such as the Makerspace's surroundings and environment. As two extremes, rural and urban spaces will have totally different approaches in a lot of aspects such as pricing, type of attendants, community internal dynamics, proficiency in the space. At the heart of Bangalore city, IKP-EDEN (5.9) acts as a startup incubator, offering quality coaching service and facilities for its hardware startups in exchange of membership fees. One and half hour by car from here, in the village of Kagalipura, Project-DEFY (5.3) has opened one of its rural, low capital Makerspaces where village dwellers have the opportunity to be empowered through *Making* without any financial constraints.

A Makerspace can either be created in response to a societal need or launched as a disruptive model to offer a novel proposition. In both of these approaches assessing and forecasting the impact and chances of success in the given environment is crucial. As the movement evolves, both success and failure stories will provide interesting insights about the importance of communities inside such spaces. Three prevalent community models in India are discussed below.

Makerspaces for *Makers*

Makerspaces' primary offering is a facilitated access to machines, experts and peers for diverse hardware and computing related creation. People come to these spaces to work on their projects ranging from hobby level to a business oriented production. The urban setting is undoubtedly the most suitable setup for such spaces due to its proximity to the target users. These spaces may have a focus on specific skill sets such as robotics or architecture, but also tend to diversify their offerings to address a larger userbase. As a business model, these spaces often propose several membership options that are tailored to their diverse audience, making the spaces dynamic, subject to its members' interests. Workbench Projects (5.1) in Bangalore, for instance, offer services to a variety of users ranging from student competition programs to Fortune 500 corporates through innovation mandates, on top of its 'basic' *Making* services and workshops for *Makers*.

Makerspaces for specialized group

This section considers Makerspaces whose activities are more focused on specific groups and specific domains such as entrepreneurship or education. Such spaces can have independent offices or be embedded in companies or institutions to be closer to their target users. THE-Workshop's (5.5) strategy is to partner with academic institutions with which it conducts workshops. THE-Workshop offers hands-on internship opportunities to the students from these partner academic institutions. The service offering and pricing of such specialized spaces are adapted to their *Makers* such as discounted prices for students and dedicated pricing for private offices where startup can work like in IKP-EDEN (5.9).

The 'openness' of *Making* is certainly challenged by such model of specialized spaces which will eventually face the threat of becoming irrelevant if they do not build a sustainable community or renew their target groups. To overcome this, such spaces either keep their doors open to other users as a 'classical' Makerspace or become a closed environment fully funded by an institution/company and become training centers or service providers rather than actual Makerspaces.

Makerspaces for non-*Makers*

As previously discussed, *Making* not only addresses technology and art professionals but also acts as a social engine impacting various levels of the society. Therefore, some Makerspaces build their communities around and for non-*Makers* such as Kolkata MakersLoft (5.2) who integrated children in their programs. Although the offering of such spaces is amongst the most original models of *Making* movement, these spaces face challenges in creating a sustainable pipeline of users. Social impact oriented Makerspaces often offer basic *Making* services on top in order to meet operational expenses, while profiting from a heterogenous user group. Spaces strictly devoted to their social impact goals are often backed by organizations or foundations like Project-DEFY (5.3) who built Makerspaces in rural communities.

3.3 Collaborations & Competition

By definition, Makerspaces are physical entities and therefore location is an important factor in determining their impact-area and geographical reach. As the *Making* is only a recent phenomenon both Switzerland as well in India, it is not rare for a space to have a monopoly in a given locality. Though it is possible that the impact areas of two spaces overlap, especially in urban settings, however, collaboration between the spaces is rarely seen. As discussed earlier, individuality of the spaces' founders is deeply reflected in their Makerspaces, with each claiming an unique approach. This resulted in a diversified space offerings at the cost of isolated spaces and smaller standalone communities of each space. Inter-space network have not been seen too often, nonetheless collaboration does happen through joint events/workshops.

Competition exists between the spaces despite their apparent uniqueness, raising crucial question of sustainability. In near future, *Makers* will access different spaces providing different services and facilities. Another possibility could be an umbrella of Makerspaces initiatives where bigger spaces would acquire smaller ones.

3.4 International collaborations

While local interactions occur in India with the organisation of *Maker* events like **Maker Mela**³, **Maker Fest**⁴ or Bangalore Mini Maker Faire (Workbench Projects, 5.1) to list a few, the Indian *Maker* ecosystem has always been globally connected since the *Maker* culture in India has largely been brought in from the USA. Some Indian spaces received grants from the USA to startup their activities. A lot of collaborations also occur with the MIT hub and CAMTech hackathons.

Indian *Makers* have also launched their initiatives abroad such as Project-DEFY (5.3) who successfully created and launched a self-sustainable spaces in a refugee camp in Uganda. Another Indian initiative THE-Workshop (5.5), which is oriented towards alternative education, has partnered with European institutions to conduct disruptive workshops. French institutions and Makerspaces have also been collaborating with India a lot such as the **S.T.E.A.M. School**⁵ at Maker's Asylum (5.4) or the **Maker Tour**⁶ that has recently been collecting data on Indian spaces. Swiss and Indian collaborations in *Making* could hence follow suit.

³ <http://makermela.com/>

⁴ <http://makerfest.com/>

⁵ <http://school.makersasylum.com/>

⁶ <http://www.makertour.fr/en/home/>

4.

Conclusion

Given the primary research covering 30+ *Makers* and enablers from Switzerland and India, there appears to be a clear case for collaborations between the two countries. From the infinite diversity of uniqueness of each space, there are successful models and stories that could inspire both Indians and the Swiss. Among this impressive variety, some Swiss and Indian spaces appear to share similar goals and values and hence could join strengths to share useful insights on more footfalls, lead sustainable activities, and make the change happen. Why should a good idea from India not be adapted and developed in Switzerland and vice-versa? Furthermore, these spaces naturally motivate people to connect, innovate and accept new challenges. Switzerland to some extent, but India in particular has shown its capacity to build bridges with other countries. Encouraged by the many success stories, they should spot the opportunities by their fellow *Makers* and generate an even richer diversity of backgrounds and skills to launch fruitful collaborations.

To drive these collaborations swissnex India will organize a platform in India for an Indo-Swiss delegation of *Making* thought leaders. Through visits, panel discussions and personalized meetings the program aims to give Swiss actors a comprehensive overview of the Indian ecosystem and to foster meaningful interactions with their Indian counterparts. The following are a few examples of collaborations that could arise from such a platform:

- Organization of Swiss-Indian *Maker* events, such as *Maker Faires*, Hackathons, workshops or conferences: This would be a fusion of Swiss and Indian *Making* where spaces and people from different backgrounds, professions, aspirations would showcase their work, exchange opinions, bring their expertise and create bonds in view of launching projects.
- Creating internship and sabbatical programs: Exchange of human capital between the spaces brings skills, human and cultural knowledge exchange that will benefit communities from both the country. For Swiss students, it is the occasion to live an experience abroad while gaining hands-on practice to complete their academic knowledge.
- Launching a *Maker* competition: This would encourage Swiss and Indian *Makers* to think about how their creativity and innovation could be channelized to solve real technical problems experienced by Indian rural communities. Furthermore, it would allow the unique combination of solutions viewed through two different lenses.

For more information please write to innovation@swissnexindia.org.

5.

Appendix - List of Indian spaces

5.1 Workbench Projects



Location: Bangalore

Focus areas:

Making, Entrepreneurship, Social entrepreneurship, Biohacking, Corporate Innovation, *Maker Faires*

Workbench Projects is a Bangalorean makerspace that embraces the many faces of *Making*. From open source *Making* they explore the entrepreneurial opportunities of the movement as well as how to link it with corporate innovation, while developing an interest for social entrepreneurship. Workbench Project supports their *Maker* community with a well equipped Makerspace (3D printing, laser cutter, sewing, woodworking, *Maker* shop) as well as with their coworking space and café to make innovative minds meet and work together. A new biohacking space is soon to be launched.

Projects:

- Partnership with Hyperloop India to develop the prototype of a pod that will feature in the global design competition for the super fast transportation system using magnetic levitation technology.

Website: <https://www.workbenchprojects.com/home>

5.2 Kolkata MakersLoft



Location: Kolkata (Calcutta)

Focus areas: *Making*, Education, Social entrepreneurship

Joining the effort of the promotion of manual and digital competences, the Kolkata MakersLoft believes that children are most capable of learning these skills. In addition to their fascinating cerebral plasticity, tinkering, breaking down and rebuilding come naturally to them and *Making* become a game for these innovators of tomorrow. MakersLoft offers different classes, programs and summer camps for young enthusiasts from 5 to 13 years. They are now exploring the possibility to open spaces in school themselves. The space also welcomes projects of students, adult and senior Makers, hosting a rich intergenerational community.

Projects:

- Organisation of “**World Robotics Olympiad**”, India’s largest robotics competition for schools and colleges. The 2017 competition was centered on “**Sustainabots: Robots for sustainability**” featuring the categories of Environmental, Social and Economical.
- Summer camps for young Makers: “**Lego Robotics**”, “**Creative Computing**”, “**Natural Dyeing and Textile Printing**”

Website: <https://makersloft.in/>

5.3 Project-DEFY

Location: Bangalore (based) - Bangalore, Mangalore, Uganda (Makerspaces)



Focus areas: Social entrepreneurship, Sustainable Development.

India's education system provides the country with 1.5 million well trained graduates students every year. However, a lot of people do not enjoy the access to quality education, especially in poorer and rural areas where children drop out of school at a young age. Project-DEFY aims at feeding the gap by empowering rural communities and putting education in their own hands. They build makerspaces run by and for local people where they implement the concept of Nooks. Nooks are self-taught classes, in which community members choose projects they want to achieve. The Project-DEFY organizers teach them the basics of computers, electronics and building but the community becomes quickly self-sufficient, learning new skills through peers, external people or directly from the internet. Such sustainable spaces have already been launched in Bangalore and Mangalore in India and in a refugee camp in Uganda.

Projects:

- Makerspaces and Nooks launched in rural villages close to Mangalore and Bangalore and in a refugee camp in Uganda
- A second space is being launched in the outskirts of Bangalore

Website: <http://www.projectdefy.org/>

5.4 Maker's Asylum

Location: Mumbai (Bombay), Delhi

Focus areas: *Making*, Entrepreneurship, Education



Maker's Asylum is one of the first Makerspaces launched in India. Engaged pioneers, Maker's Asylum's team members have been encouraging the development of *Maker* culture in other parts of India. Their space provides the necessary tools and machinery to satisfy the creativity of its large *Maker* community, a dynamic blending of students, entrepreneurs, free-lancers and retired engineers. From 'bench on rent' to incubation, their accommodation offering is ready to support any level of engagement. Expanding their outreach beyond India, they have partnered with a French research center to launch an Indo-French Maker program for students.

Projects:

- **"Makers in residence"**: This 4 to 8 month program supports the most innovative *Makers* in accelerating their idea in Maker's Asylum's space and provide coaching throughout the project.
- **"S.T.E.A.M. School"**: Co-organized with the Centre de Recherches Interdisciplinaires (France), this 10 day program allows Indian and French students to address a challenge from the UN Sustainable Development Goals of 2030 by developing their own solutions in Maker's Asylum

Website: <https://www.makersasylum.com/>

5.5 THE-Workshop



Location: Bangalore

Focus areas:

Making, Education, Design & Architecture.

THE-Workshop (Think Happy Everyday - Workshop) was created by a group of architects who wanted to allow professionals and students to develop practical skills in design, architecture and engineering. Collaborating with institutions from India and around the world, they propose eclectic workshops integrating a variety of competences applied to a given problem. They also support their members to lead their projects in their makerspace and collaborate with professionals, designers and artists attracted by the offering equipment, facilities and expertise. Beside their trained staff, THE-Workshop employs interns who have the opportunity to learn while bringing their valuable skills to the various projects led by the house.

Projects:

- “**Service Design with CIID**” - In this intensive 3-day workshop, participants learned and applied advanced service design and experience prototyping techniques both in the digital and physical realm. They walked away equipped with a complete toolkit for rapid user-focused innovation and a certificate from CIID (Copenhagen Institute of Interaction Design).

Website: <http://the-workshop.in/>

5.6 Vigyan Ashram

Location: Pune

Focus areas: *Making*, FabLab, Social Development

Vigyan Ashram is the oldest institution of *Making* in India. In fact they were the first FabLab to open outside of MIT. Their focus has always been directed to rural area development. They have opened many FabLabs and *Making* classes in rural schools, empowering local workers such as carpenters or metal workers as teacher and allowing people to be introduced to various manual skills. They have also been working with local academic institutions and been carrying out entrepreneurship programs.



Projects:

- (2016) Design Innovation Center in collaboration with Savitribai Phule Pune University: Incubation center for the development of low-cost innovation.

Website: <http://vigyanashram.com/>

5.7 JAAGA-Startup



Location: Bangalore

Focus areas: Entrepreneurship

JAAGA-Startup is a Bangalore based startup incubator with focus on hardware. Organized as a large open space, JAAGA-Startup believes in the potential of co-working to accelerate brilliant ideas into products and innovators into entrepreneurs. To save time, energy and money, it has created an internal social media recording the community members and their skills. People at JAAGA use the software to ask for help and provide some to the other entrepreneurs in a quick and efficient way. With this philosophy, JAAGA has built over time a strong and sustainable community of loyal entrepreneurs. Their dream is now to expand this network abroad and grow an online network for virtual exchanges of knowledge and expertise.

Projects:

- Participation as experts, mentors and judges at swissnex India AIT-CAMP for researchers in 2015

Website: <https://jaagastartup.in/>

5.8 CEPT FabLab



Location: Ahmedabad

Focus areas: FabLab, Education

CEPT FabLab has been implemented in the Architecture oriented CEPT institution in Ahmedabad, Gujarat. It provides facility and technical support to students from CEPT to lead their academic or personal projects.

Website: <https://www.fablabs.io/labs/fablabcept>

5.9 IKP-EDEN



Location: Bangalore

Focus areas: *Making*, Entrepreneurship

IKP-EDEN is the largest hardware-oriented startup incubator of India. Its founders believe in the development of businesses from successful ideas through *Making* and coworking. Funded by governmental grants from India and the USA, it has the potential in turning its startups into bigger companies. They are currently hosting 23 startups and following 3 projects at pre-incorporation stage. IKP-EDEN provides member startups with private space, a fully equipped makerspace with mentors as well as a co-working space. Their activities will soon expand to life sciences with the opening of a new biological lab.

Website: <https://ikpeden.com/>

5.10 Bangalore Makerspace & Open Source Creativity

Location: Bangalore

Focus areas: *Making*, Virtual community

At Bangalore Makerspace & Open Source Creativity every *Maker* is free to enter their space, a philosophy well in line with the core *Making* movement ideology of make technology available for all. Before its recent physical implementation to provide space and workshop to *Makers*, it opened as an online platform on Facebook. The platform gathers enthusiasts for *Making* from all around India and even other countries. In total, 20,000 people are now members, exchanging tips, asking for materials, advertising their activities and their projects. From this platform, other sub-groups centered on particular interests such as cars or robotics have emerged from the community and are supported by Open Source Creativity.

Website: <https://www.facebook.com/groups/blrmakespace/?fref=ts>

